

## OIB - DC-8 11/09/16 Science Report

**Aircraft:**

[DC-8](#) ([See full schedule](#))

**Date:**

Wednesday, November 9, 2016

**Mission:**

OIB

**Mission Location:**

Antarctica

**Mission Summary:**

IceBridge successfully completed the high priority ICESat-2 WAIS Cores mission. This is partially a new mission, designed to collect baseline measurements along planned ICESat-2 ground tracks. Most of the lines are located between the Pine Island and Thwaites channels, where the ice is expected to change relatively slowly, making this a suitable area for comparisons with future ICESat-2 measurements. It is also an area with relatively few dh/dt measurements collected to date, making it desirable to collect measurements of background change rates outside the fast-changing outlets. The lines also broaden the ice types measured with overflights of ICESat-2 ground tracks over lower Thwaites and upper Pine Island channels. We targeted left, center and right IS-2 beam pairs each with two ground tracks. The western portion of the flight is a partial repeat of the 2011 WAIS Cores mission, which crosses the WAIS ice divide and also overflies several ice core sites.

During the previous day, the narrow and wide scan ATM lasers were swapped after a failure of the chiller on the previous flight. Due to this swap, prior to the ramp pass at the start of the flight ATM aligned their systems quickly to calibrate their system. The two laser systems were ran simultaneously for a short time on the data line, then the narrow scan system was turned off to be used as a backup system in case of future need. The ATM wide scan system worked nominally during the flight.

Weather for the mission was quite good, though there were a few areas of clouds. ATM lost about seven minutes of data due to fog on the northern part of the Pine Island channel near the start of the data line. Some thin clouds were present on the southwestern portion of the line near the core sites, though these were generally above the plane and didn't have much of an impact on data collection. ATM also lost about two minutes of data for a computer reboot on transit to the core sites. Lastly, ATM and DMS lost a few minutes of data due to clouds near the end of the line over Thwaites, though it cleared out quickly near the Thwaites ice tongue where we achieved good data collection until the end of the line. Overall, it was another very successful mission with only a small amount of data lost due to weather and instrument issues.

**Data volumes**

ATM: T5: Used only as backup during ramp pass and about 30 minutes at start of line      T6: 29 Gb

FLIR: 10.6 Gb

Cambot: 33 Gb

DMS: 83.8 Gb

Snow/Ku radars: 501 Gb each

MCoRDS: 1.3 Tb

AIRGrav: 5 Gb

data on: 1611

data off: 2108

**Submitted by:**

Nathan T. Kurtz on 11/09/16

**File:**

 [ICESat2\\_WAIS\\_Cores\\_Map.pdf](#)

**Related Flight Report:**

### DC-8 11/09/16 - 11/10/16

**Flight Number:**

1156

**Payload Configuration:**

OIB-ATM NAV/ATM GPS/ATM-T5/T6/ATM FLIR/ATM CAMBOT MCoRDS/SNOW/Ku RADAR DMS/POS-AV GRAVIMETER & ARMAS (piggyback)

**Nav Data Collected:**

Yes

**Total Flight Time:**

11.7 hours

**Submitted by:**

Timothy Moes on 11/13/16

**Flight Segments:**

|                           |   |                |                  |
|---------------------------|---|----------------|------------------|
| <b>From:</b>              | SCCI - Punta Arenas   | <b>To:</b>     | SCCI             |
| <b>Start:</b>             | 11/09/16 12:55 Z  | <b>Finish:</b> | 11/10/16 00:34 Z |
| <b>Flight Time:</b>       | 11.7 hours  |                |                  |
| <b>Log Number:</b>        | <a href="#">178010</a>  | <b>PI:</b>     | Nathan Kurtz     |
| <b>Funding Source:</b>    | Bruce Tagg - NASA - SMD - ESD Airborne Science Program  |                |                  |
| <b>Purpose of Flight:</b> | Science   |                |                  |
| <b>Comments:</b>          | Good flight. A ramp overpass calibration was flown at 1200 ft AGL at the start of the mission. This was a partially a new mission, designed to collect baseline measurements along planned IceSat-2 ground tracks. Most of the lines were located between the Pine Island and Thwaites channels. All instruments are healthy and worked during the flight. Only data losses were due to clouds but only resulted in about 15-20 minutes of data loss overall. The aircraft had two minor writeups that will be looked into post-flight. |                |                  |

**Flight Hour Summary:**

|                                       |               |
|---------------------------------------|---------------|
|                                       | <b>178010</b> |
| <b>Flight Hours Approved in SOFRS</b> | 300           |
| <b>Total Used</b>                     | 306.9         |
| <b>Total Remaining</b>                | -6.9          |

**178010 Flight Reports**

| Date                                | Flt # | Purpose of Flight | Duration | Running Total | Hours Remaining |
|-------------------------------------|-------|-------------------|----------|---------------|-----------------|
| <a href="#">10/04/16</a>            | 1135  | Science           | 4        | 4             | 296             |
| <a href="#">10/05/16</a>            | 1136  | Science           | 2.7      | 6.7           | 293.3           |
| <a href="#">10/12/16</a>            | 1138  | Transit           | 10.9     | 17.6          | 282.4           |
| <a href="#">10/12/16</a>            | 1139  | Transit           | 3        | 20.6          | 279.4           |
| <a href="#">10/14/16 - 10/15/16</a> | 1140  | Science           | 10.9     | 31.5          | 268.5           |
| <a href="#">10/15/16 - 10/16/16</a> | 1141  | Science           | 11.8     | 43.3          | 256.7           |
| <a href="#">10/17/16 - 10/18/16</a> | 1142  | Science           | 11.8     | 55.1          | 244.9           |
| <a href="#">10/20/16 - 10/21/16</a> | 1143  | Science           | 11.4     | 66.5          | 233.5           |
| <a href="#">10/22/16</a>            | 1144  | Science           | 11       | 77.5          | 222.5           |
| <a href="#">10/24/16 - 10/25/16</a> | 1145  | Science           | 11.5     | 89            | 211             |
| <a href="#">10/25/16 - 10/26/16</a> | 1146  | Science           | 11.3     | 100.3         | 199.7           |
| <a href="#">10/26/16 - 10/27/16</a> | 1147  | Science           | 12.1     | 112.4         | 187.6           |
| <a href="#">10/27/16 - 10/28/16</a> | 1148  | Science           | 11.5     | 123.9         | 176.1           |
| <a href="#">10/28/16 - 10/29/16</a> | 1149  | Science           | 11       | 134.9         | 165.1           |
| <a href="#">10/31/16 - 11/01/16</a> | 1150  | Science           | 11       | 145.9         | 154.1           |
| <a href="#">11/02/16 - 11/03/16</a> | 1151  | Science           | 11.2     | 157.1         | 142.9           |

|                                     |      |         |      |       |       |
|-------------------------------------|------|---------|------|-------|-------|
| <a href="#">11/03/16 - 11/04/16</a> | 1152 | Science | 11.5 | 168.6 | 131.4 |
| <a href="#">11/04/16 - 11/05/16</a> | 1153 | Science | 11.1 | 179.7 | 120.3 |
| <a href="#">11/05/16 - 11/06/16</a> | 1154 | Science | 11.7 | 191.4 | 108.6 |
| <a href="#">11/07/16 - 11/08/16</a> | 1155 | Science | 11.2 | 202.6 | 97.4  |
| <a href="#">11/09/16 - 11/10/16</a> | 1156 | Science | 11.7 | 214.3 | 85.7  |
| <a href="#">11/10/16</a>            | 1157 | Science | 10.9 | 225.2 | 74.8  |
| <a href="#">11/11/16 - 11/12/16</a> | 1158 | Science | 11.3 | 236.5 | 63.5  |
| <a href="#">11/12/16 - 11/13/16</a> | 1159 | Science | 11.1 | 247.6 | 52.4  |
| <a href="#">11/14/16</a>            | 1160 | Science | 10.9 | 258.5 | 41.5  |
| <a href="#">11/15/16 - 11/16/16</a> | 1161 | Science | 11.6 | 270.1 | 29.9  |
| <a href="#">11/17/16 - 11/18/16</a> | 1162 | Science | 11.1 | 281.2 | 18.8  |
| <a href="#">11/18/16 - 11/19/16</a> | 1163 | Science | 11.1 | 292.3 | 7.7   |
| <a href="#">11/21/16</a>            | 1165 | Transit | 11.6 | 303.9 | -3.9  |
| <a href="#">11/21/16</a>            | 1164 | Transit | 3    | 306.9 | -6.9  |

*Flight Reports began being entered into this system as of 2012 flights. If there were flights flown under an earlier log number the flight reports are not available online.*

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